

ES&H Manual Revision

Document Title: Implementation of the Chronic Beryllium Disease Prevention Program Requirements (Formerly H&SM S21.10, "Safe Handling of Beryllium and Its Compounds")

Document Number: ES&H Manual Document 14.4

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Reason for Revision: 10 CFR 850, "Chronic Beryllium Disease Prevention Program (CBDPP)," (the Rule) establishes significant requirements for DOE contractors working with insoluble beryllium, beryllium alloys, and beryllium compounds and is applicable to work at LLNL. This regulation is in response to the incidence of beryllium sensitization and chronic beryllium disease (CBD) among DOE contractor personnel. New cases of sensitization and CBD are continuing to be diagnosed in both current and former DOE/ERDA/AEC contractor employees.^{1 2}

Our CBDPP (UCRL-AR-144636) which was approved by DOE (as required by the Rule) has 24 action items, one of which is to revise the former Health and Safety Manual Supplement 21.10. "Safe Handling of Beryllium and Its Compounds." This document satisfies that

¹ There are presently 6 current LLNL employees who are sensitized to beryllium; there are no current cases of CBD; approximately 175 workers have been tested. Of former LLNL employees there are approximately 18 cases of sensitization; one former employee was diagnosed with lung cancer and CBD on autopsy; approximately 600 former workers have been tested.

² The DOE's stated intent is to eliminate CBD from the DOE Complex. Beryllium toxicology is not well understood; exposures below the action level may result in sensitization and disease. Documents presented in the rulemaking process could not determine if the action level established in the Rule actually represented a safe level or not, hence, the "as low as practical" philosophy.

action item and several others as well; it also sets policy that permits work to close other action items.

General Description of Change:

The document incorporates the regulatory requirements of 10 CFR 850 and establishes new LLNL policy.

The attached table provides a cross-walk between 10 CFR 850 and this ES&H Manual document.

Major Impacts to LLNL Operations:

(1) There are increased work planning and hazard assessment requirements that involve coordination of the RI, the ES&H Team, and Health Services.

(2) The ES&H Team will have increased need to participate in many aspects of work involving beryllium, increased need to assess the hazards of all beryllium operations more thoroughly, taking more exposure and surface contamination samples.

(3) New beryllium operations will require DOE approval prior to starting work.

(4) There are enhanced training requirements.

(5) There are enhanced medical surveillance requirements.

The net impact will be that work involving beryllium will be slower and more expensive, but risk to LLNL workers will be reduced. The Directorates that will have major impacts are Engineering, Defense & Nuclear Technology, and to a certain extent Chemistry & Material Science.

Major Issues Debated:

(1) The document defines “compliance” with the exposure and housekeeping standards to be a sufficient number of samples to ensure statistical confidence of at least 95%. Implicit in this policy decision is that we cannot assure 100% compliance. This is also departure from the usual industrial hygiene approach where

decisions are made on the basis of a limited number of samples and professional judgement. The Rule requires the use of statistical methods. The 95% level also defines the amount of risk that LLNL assumes with beryllium work.

(2) A feature of the Rule is Medical Removal, where an employee who is diagnosed as sensitized to beryllium or with CBD, is offered alternate placement based on the Medical Director's recommendation. The employee has the option of accepting or declining the recommendation. LLNL incurs liability by allowing this; however, it is permitted by the Rule and it is consistent with a number of legal decisions (such as the Johnson Controls case in which the Supreme Court decided against Johnson Control's fetal protection policy). The liability is that a sensitized or diseased worker can choose to work where there is continued potential exposure to beryllium. Document 14.4, as written, is consistent with both the Rule and relevant legal decisions.

(3) Throughout this document, as well as the rest of the ES&H Manual, LLNL policy is to require those individuals and organizations with assigned responsibilities to "ensure" that various actions take place. "Ensure" means to guarantee that something happens; this happens with mixed results. This puts LNLL at risk when subject to a legal challenge: if there is responsibility to ensure an action, and that action is not done, then LLNL may be deemed to be negligent in carrying policies that are put in place to ensure the safety of out workforce.

Document 14.4 is consistent with the rest of the ES&H Manual in this regard.

Recommendation: Program established by this document to control worker exposures should protect the health and safety of the majority of people working with beryllium. The document should be approved.

Table: Cross-walk between 10 CFR 850 and Document 14.4

Section of 14.4	10 CFR 850 Requirement?	LLNL Imposed Requirement?
1	Carries forth information of 10 CFR 850 Subpart A, "General Provisions," and background material from 64 FR 68854, "Chronic Beryllium Disease prevention Program."	
2	Background information from 64 FR 68854 and other general references.	
3.1	Implements 10 CFR 850 Subpart B and 850.25	
3.2	Implements 850.25	
3.3	Implements 850.22, 850.23, 850.33, 850.31	LLNL adopts 95% confidence interval for compliance
3.4	Implements 850.11 and 850.25(c)	
3.5	Implements 850.20, 850.21, 850.24, 850.26, 850.34, 850.35, 850.36, 850.37, 850.38, 850.39	LLNL established additional signs and labels: (1) for beryllium work areas, beryllium storage areas, and beryllium articles.
3.6	Implements 850.28 and 850.29	LLNL requirement to use respiratory protection until work exposure is known.
3.7	Implements 850.11	This is not a specific requirement of the Rule but is consistent with the general program requirements to minimize exposure and opportunities for exposure.
3.8	Implements 850.30	LLNL adopts 95% confidence interval for compliance
3.9	Implement 850.31	
3.10	In part implements 850.11	This is not a specific requirement of the Rule but is consistent with the general program requirements to minimize exposure and opportunities for exposure.
3.11	Implements 850.32, 850.38	
3.12	Implements 850.33	
3.13	Implements 850.30, 850.31	

Section of 14.4	10 CFR 850 Requirement?	LLNL Imposed Requirement?
3.14	Implements 850.2	Establishes protocol as LLNL policy determine compliance with this section.
4		Collects and summarizes Section 3.
5		Identifies all WSS applicable to beryllium work.
6		Provides additional references and guidance documents.
App A	Implements 850.3	
App B	Implements 850.35	
App C		Establishes LLNL policy for meeting standards (cross reference §§3.3 and 3.8); provides guidance on meeting standards.